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DOCKET NO.: 9578-001-27

ASSISTANT COMMISSIONER FOR PATENTS
WASHINGTON, D.C. 20231

Re: Serial No.: 09/904,846
Applicant(s): Eldar TUVEY et al.
Filing Date: July 16, 2001
For: INFORMATION COMMUNICATION SYSTEM
Group Art Unit: 2152
Examiner:

SIR:

Attached hereto for filing are the following papers:

REQUEST FOR PRIORITY
CERTIFIED COPY OF UNITED KINGDOM PATENT APPLICATION
NUMBER 0017380.7

Our check in the amount of $___0___ is attached covering any required fees. In the event any variance exists between the amount enclosed and the Patent Office charges for filing the above-noted documents, including any fees required under 37 C.F.R. 1.136 for any necessary extension of time to make the filing of the attached documents timely, please charge or credit the difference to Deposit Account No. 50-1442. Further, if these papers are not considered timely filed, then a request is hereby made under 37 C.F.R. 1.136 for the necessary extension of time. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

PIPER RUDNICK LLP

Steven B. Kelber
Attorney of Record
Registration No.: 30,073
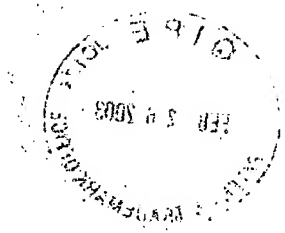
DOCKET NO.: 9578-001-27

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: Eldar TUVEY et al. ART UNIT: 2152

SERIAL NO: 09/904,846 EXAMINER:

FILED: July 16, 2001

FOR: INFORMATION COMMUNICATION SYSTEM

REQUEST FOR PRIORITY

ASSISTANT COMMISSIONER FOR PATENTS
WASHINGTON, D.C. 20231

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FEB 2 7 2003

Technology Center 2100

SIR:

☐ Full benefit of the filing date of U.S. Application Serial Number [US App No], filed [US App Dt], is claimed pursuant to the provisions of **35 U.S.C. §120.**

☐ Full benefit of the filing date of U.S. Provisional Application Serial Number , filed , is claimed pursuant to the provisions of **35 U.S.C. §119(e).**

■ Applicants claim any right to priority from any earlier filed applications to which they may be entitled pursuant to the provisions of **35 U.S.C. §119**, as noted below.

In the matter of the above-identified application for patent, notice is hereby given that the applicants claim as priority:

<u>COUNTRY</u>	<u>APPLICATION NUMBER</u>	<u>MONTH/DAY/YEAR</u>
UNITED KINGDOM	0017380.7	JULY 14, 2000

Certified copies of the corresponding Convention Application(s)

■ are submitted herewith

☐ will be submitted prior to payment of the Final Fee

☐ were filed in prior application Serial No.   filed

☐ were submitted to the International Bureau in PCT Application Number

☐ (A) Application Serial No.(s)   were filed in prior application Serial No.   filed   ; and

(B) Application Serial No.(s)

☐ are submitted herewith

☐ will be submitted prior to payment of the Final Fee

Respectfully submitted,
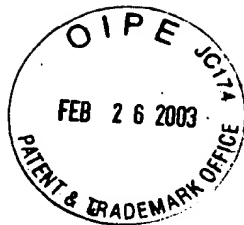
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I, the undersigned, being an officer duly authorised in accordance with Section 74(1) and (4) of the Deregulation & Contracting Out Act 1994, to sign and issue certificates on behalf of the Comptroller-General, hereby certify that annexed hereto is a true copy of the documents as originally filed in connection with the patent application identified therein.

In accordance with the Patents (Companies Re-registration) Rules 1982, if a company named in this certificate and any accompanying documents has re-registered under the Companies Act 1980 with the same name as that with which it was registered immediately before re-registration save for the substitution as, or inclusion as, the last part of the name of the words "public limited company" or their equivalents in Welsh, references to the name of the company in this certificate and any accompanying documents shall be treated as references to the name with which it is so re-registered.

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Dated   11 February 2003

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The Patent Office

Cardiff Road
Newport
South Wales
NP9 1RH

1. Your reference	PDT/8132/3

17 JUL 2000

2. Patent application number *(The Patent Office will fill in this part)*	**0017380.7**

3. Full name, address and postcode of the or of each applicant *(underline all surnames)*

MAILROUND.COM LIMITED
8th Floor
Charter House
2 Farringdon Road
LONDON EC1M 3HP

Patents ADP number *(if you know it)*

If the applicant is a corporate body, give the country/state of its incorporation

UNITED KINGDOM

4. Title of the invention

INFORMATION COMMUNICATION SYSTEM

5. Name of your agent *(if you have one)*

OLSWANG

"Address for service" in the United Kingdom to which all correspondence should be sent *(including the postcode)*

90 Long Acre
LONDON
WC2E 9TT

Patents ADP number *(if you know it)*

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and *(if you know it)* the or each application number

Country	Priority application number *(if you know it)*	Date of filing *(day / month / year)*

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application	Date of filing *(day / month / year)*

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? *(Answer 'Yes' if:*
a) any applicant named in part 3 is not an inventor, or
b) there is an inventor who is not named as an applicant, or
c) any named applicant is a corporate body.
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   following items you are filing with this form.
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   Description   12

   Claim (s)

   Abstract

   Drawing (s)   3—7 . 1/1

10. If you are also filing any of the following,
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    Priority documents

    Translations of priority documents

    Statement of inventorship and right
    to grant of a patent *(Patents Form 7/77)*

    Request for preliminary examination
    and search *(Patents Form 9/77)*

    Request for substantive examination
    (Patents Form 10/77)

    Any other documents
    (please specify)

11.   I/We request the grant of a patent on the basis of this application.

     Signature   Date   14 July 2000

12. Name and daytime telephone number of   PHIL TREEBY
    person to contact in the United Kingdom   0207 208 8888

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Patents Form 1/77

Information Communication System

The present invention relates to an information communication system. The invention particularly relates to a system for communicating information wherein the information is advertising material. More particularly it relates to a system for use with electronic mail applications.

The positive effect of advertising upon a company's sales is well documented. Greater advertising and product exposure will usually result in greater sales, and consequently greater profits. Therefore, organisations are anxious to promote their products through all available mediums in order to achieve maximum exposure.

A network is a group of computer systems linked together. The Internet is a global network connecting millions of computers. Computers and devices that allocate resources for a network are called servers. For example, a network server is a computer that manages network traffic, and a database server is a computer system that processes database queries.

Servers are generally dedicated. This means that the computer performs no other task besides their server duties. However, on multi processing operating systems a single computer can execute several programs at once. In this instance a server could refer to the program that is managing the resource rather that the whole computer. It is also usual to refer to the company providing the resource management as the server. Thus references to 'server side' correspond to actions or programs that occur at the location of the server.

With the advent of the Internet, and more particularly electronic mail, usually termed email, new avenues of communications have been opened. It is estimated that 85% of Internet users use email to communicate with friends and family. Furthermore, it is also estimated that 30% of online time is devoted to writing, sending and reading emails.

The Internet, of which email is part, uses protocols to define how data is formatted and transmitted across the Internet. It comprises a system of servers that support specifically formatted documents. These Internet servers are usually termed the world wide web (WWW). The formatting language of the documents that support the WWW is termed Hypertext Markup Language (HTML). This language supports links to other documents,

allowing a user to skip from one page to the next. This is generally achieved by "clicking" specified on screen icons using a mouse or other tool.

Conventionally the WWW uses Hypertext Transfer Protocol (HTTP) as its base protocol. Hence it is HTTP that defines how data messages are formatted and transmitted. Also it is HTTP that governs what actions web servers or browsers should take in response to commands given. An example is when a URL is entered into a web browser. In this action a HTTP command is sent to the web server directing the server to retrieve and transmit the requested web page.

Email uses different protocols from the WWW. The most popular of these include SMTP, POP and IMAP.

SMTP, Simple Mail Transfer Protocol, is a protocol for sending electronic messages, or email, between different servers. The majority of email systems that send data over the Internet use the SMTP protocol to relay messages from one server to another. Additionally, it is usual for messages to be sent from email applications to email servers via SMTP.

Post Office Protocol (POP) is a protocol substantially used for retrieving email messages from a mail server. For many years, the original version of POP, POP2 was the industry standard and required SMTP to send messages. However, the latest version, POP3 can be used independently, or in co-operation with SMTP.

IMAP, or Internet Message Access Protocol is a protocol with similar features to POP3.

A user generally logs onto the Internet using a modem which is controlled by a software package. The access will be achieved by using a telephone number provided by an Internet Service Provider (ISP). Once 'on' the Internet a user may send and receive email.

The vast majority of ISPs support portals, termed Network Access Points, which allow users of differing ISP systems to exchange email with one another.

Thus, when a user wishes to send email, he will input messages into his computer using appropriate software and the system will then be instructed to send the message to the desired recipient. This action may prompt an opening of a phone line connection to the sender's ISP. Alternatively, the user may already be connected to the ISP at the time that the message is

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composed. The data corresponding to the message is received by the ISP and sent out across the Internet. The message is transmitted to the ISP of the recipient by using the routing table that comprises the Internet. The recipient may then receive their message from their ISP.

In addition to sending email in the manner described above, it is possible to send email through a system that is conventionally termed webmail. Webmail allows users with web browsers to send email without an email account. An example of this system is Hotmail. Webmail is based on open web-based technology. A web browser is used for emails sent and received by the governing server, i.e. the server of the operator of the system, often a website, which hosts the webmail.

As email has become one of the world's biggest mediums for communication, advertisers would like to take advantage of this medium to reach a large number of consumers. Further since emails are generally directed to a particular person or group of people, there is a potential to direct advertising more specifically than has been available heretofore.

The present invention seeks to provide a solution to the above problem by inserting information such as an advert into an outgoing or incoming email.

Thus, according to a first aspect of the present invention there is provided a method of embedding information directly into a communication between via a network between a user processor and a third party processor comprising the steps of:

(a) intercepting the application network communication;

(b) communicating information relating to the communication to a remote server;

(c) modifying the network communication according to a algorithm that combines attributes of the network communication with rules and information provided by the remote server.

The network is preferably the Internet and the processor is preferably a computer. However, the processor may also be a mobile telephone, television or the like.

The information is preferably embedded into the communication at the time the communication is sent from the user processor. Thus in a preferred arrangement, the user

processor will communicate with the remote server and modify the communication by introducing the information before the email is transmitted to the Internet or, alternatively when the communication is received from the Internet before being delivered to it's recipient. In other words before being placed in the recipient's inbox. In this arrangement, since the communication actually contains the information, it can be viewed off line.

The present invention is particularly useful where the communication is an email.

Ideally the information relates to advertising material. However, the information may be any other kind of message or design.

The method of the present invention is preferably capable of allowing interacting with both webmail and ISP based mail. Often a user may have two email accounts, one web based, such as Hotmail and the other provided by an ISP. The present system is preferably capable of interacting with mail from both systems. Alternatively, if a user only has one such account the present invention is preferably capable of interacting with either system in isolation.

The method of the present invention preferably enables both incoming and outgoing emails from the user computer to be modified.

According to a second aspect of the present invention there is provided an information communication system comprising software loadable onto a computer characterised in that the program is capable of intercepting an electronic communication, communicating information to a remote server and modifying the communication. Preferably, the invention provides a computer program that is capable of running on any computer. Ideally the program intercepts sent and received emails and communicates with the remote server and based upon rules embeds information and other content into the user's communications, which are preferably emails.

The loadable software preferably comprises a Java application. In a preferred embodiment of the present invention the application is stored on the user's computer and filters the POP, SMTP and/or HTTP data passing through it.

Ideally the method and/or the system includes an interaction with a server side database which may be integral with the remote server. Alternatively, there may be a plurality of

databases. In this arrangement, a second database may replicate a first database. One benefit is that the system is made more resilient by having a back-up database.

In a preferred embodiment of the present invention a centralised address book may be formed. When a network communication is intercepted the contact details of the recipient or sender are gathered automatically and stored on the database under an identification of the user.

The interaction between the computers and the servers and/or with the databases is preferably achieved via HTTP. The interactions between the servers and the database is preferably achieved via JDBC. This allows the application to seek instruction from the server side database regarding the nature of the information to be embedded into the communication.

Preferably the communications may be intercepted and modified via remote control. It is preferred that the loadable software is not a hard-coded agent, and is, preferably, a slave that is manipulated from the remote server. Ideally the loadable software is constructed with operations that may be executed in a plurality combinations by the server to detect and modify a plurality of network communications. More particularly the software is constructed with capacity to receive automatic updates from the remote server.

It is preferred that individual functional components can be placed either user or server side.

The database is preferably structured, and ideally, allows for storage of details and preferences of users of the present invention and the ability to subsequently interrogate the data.

Preferably the Java application intercepts and modifies communications sent via either or both webmail and ISP mail.

Preferably the modification to the electronic communication comprises inserting information such as a logo or text into the communication. Preferably the logo or text comprises an advert. Other content such as programs, video, music and the like may also be included.

In a preferred embodiment of the present invention the inserted information embedded into the communication may be read off line. Preferably the present invention conforms to the MHTML email standard (RFC 2557).

One method of referencing information into emails is by what can be termed Late Bound referencing. In this method the information itself is not included into the communication when sent, but may be retrieved when a user reads the Email. Therefore, this process relies on the receiving application to resolve and retrieve the reference when the email is read.

An alternative method of referencing information into emails is by what can be termed Early Bound referencing. In this method the embedding an image or information into an email at the time the email is sent, and the receiving application is able to display the image or information immediately on receipt.

The main advantage of late bound adverts is that the advert can be chosen at receive time and tracked very accurately. The disadvantage is that it requires the user to be online when reading their mail - users who are not online either receive a "broken image", or are prompted to dial-up every time they read a mail. Additionally, maintaining the same advert in a mail for a long period (i.e. weeks) is problematic. Early bound adverts allow the recipient to view adverts offline and do not increase their net download time. The disadvantage is that the advert must be chosen and tracked at send time rather than read time.

The present invention comprises a system that supports both approaches intelligently. Mails destined for webmail only services (i.e. No POP facility) are late bound, whilst all other mails are early bound.

In a preferred embodiment of the present invention the invention is adapted to observe ISP details from a range of third party email applications. Thus, through the present invention it is possible to remotely detect which ISP is hosting the user.

Preferably the present invention comprises a locally installed miniature web server. This preferably allows the user to view a website offline. Preferably changes of the website are synchronised automatically when the user goes online.

It is preferred that the miniature web server is able to accept standard HTTP requests from a web browser and, preferably, generate corresponding standard HTTP responses. It is preferred that the miniature web server works in conjunction with the downloadable software. Ideally the software redirects requests to the miniature web server if the user is offline.

Preferably the redirected requests include requests for inclusion of information, such as an advertisement, and requests from users to alter the type of information that is to be inserted into has communications.

If a request for an advert is sent but, the user is offline, the miniature web server collects the information to be inserted and relays it to the server once the user returns online.

The rules based system of the present invention enables the information added to a particular Email to be tailored. Thus, a user may be able to pre-specify the type of information which may be inserted into the communications.

Preferably the present invention is capable of multi-playout of emails. This comprises transparently converting single mails with multiple recipients into multiple mails with single recipients. This allows different rule sets and processing to be applied to each recipient. Thus an email sent to ten individuals is, in effect, broken down into ten separate emails. This then allows different pieces of information to be inserted into each mail.

The type or content of the information embedded into the communication may be preferably chosen by the recipient or sender of the communication. Preferably when communications are received by the server side program details of the preferences supplied by the consumer are used to choose what type of information is embedded into the communication from the available content pool.

It is also preferred that any recipients not previously sent a communication through the present system receive an opt out message. Thus, if the recipient decides not to have communications modified this is not so done.

It is also preferred that the Java application is designed to degrade, preferably during periods of infrastructure failure. The present invention is designed to revert to pass through whenever any problems are detected.

Preferably communication from the web server to the web browser is encrypted. This is preferably achieved using SSL.

Whilst any web server may be used an Apache web server is particularly preferred.

Preferably users wishing to have the application loaded on to their computer must register. Preferably there is a web based interface for the user to the internet, which is preferably for registration and account management. In a preferred embodiment of the present invention the web interface comprises a combination of Java servlets and Java server pages. The interface is preferably run within the Jrun servlet engine.

In order that the present invention be more readily understood specific embodiments thereof will now be described with reference to the accompanying drawings in which:

Figure 1 : is a diagrammatic overview of the known interactions for sending and receiving electronic mail;

Figure 2: is a diagrammatic overview of the advertising system in accordance with the present invention; and

Figure 3: is a schematic of the technical architecture of the present invention.

With reference to the accompanying drawings an advertising system comprises a user component and a server component. Both of these components are computers. A computer program is installed upon the user computer. The program is capable of intercepting application network communications and further capable of modifying each communication according to a algorithm that combines attributes of the network communication with rules and content stored on a central server. Further details of the above are now described in greater detail.

A Java based application is installed upon the user's computer. The program is constructed and designed to make use of existing Java virtual machines where possible, to minimise the download size of the program. Java virtual machines comprise Java interpreters and Java runtime environments. Compiled Java code can be run on most computers because Java virtual machines exist for most operating systems.

The Java application runs on the user's computer and inserts or embeds inbound and out bound emails according to instructions from applications running server side on web servers.

The application is able to insert the information into the email as it is capable of intercepting local network communications (such as email). However, if required the application can remain transparent to such communications.

When in use the application requests, receives and acts on instructions from a remote server, termed a web server. As the application receives data string corresponding to an email message it parses the data and relays it onto the mail server. The web server receives the message components from the application and parses the message components according to general rules, as well as specific rules relating to a specific application program. The modifying instructions are then sent back to the application, which modifies the email message in accordance with the instructions.

The web server and application are also in contact regarding the configuration of the message. The application sends requests to the server, which in turn processes said requests and sends configuration updates back to the application. The application, in response to the instructions updates the configuration of the email.

The user's computer creates an interface between the user and the Internet. This interface is created using a combination of Java servlets and Java server pages on the Server. The interface is run within a JRun servlet engine in an application server and integrated development environment for constructing and displaying server side Java applications.

The data communication between the server and the browser is encrypted using SSL, to protect information such as passwords and account balances. SSL stands for secure sockets layer and is an application that pipes encrypted information over the Internet using public key cryptography.

The Java based application intercepts email from the user's computer and relays to the application server. A Bootstrap servlet instructing the application where to make its main request and what parameters should be passed. The client then makes the main request. A load balancer is included within the application servers. A load balancer then chooses which server is to be used. This can be done on a predetermined basis. For example, the load balancer may pass requests to the servers alternatively or randomly. In addition if a server crashes, the load balancer will divert all incoming requests to the remaining available servers.

The application also makes use of a user side load balancer, which avoids the problems commonly associated with balancing HTTP on the server side.

The chosen server responds to the Java application with processing instructions and data. The web server used in the present invention comprises an apache web server.

The application receives the instructions and data and enriches the original message data. This is done by parsing the data. A parser is a program which processes a stream of tokens according to grammatical rules. The parser is often fed by a tokenizer which assembles a stream of characters (e.g. from a document) into tokens. Many parsers have an in-built tokenizer allowing them to process character streams directly.

Once this operation is complete the enriched data is returned to be parsed onto an ISP or, if web mail is used to the web monitor.

The invention further comprises a plurality of database servers which communicate to the application servers through Java database connectivity. A database server is a computer system that processes database queries. This database is replicated onto a second database.

As stated above the present invention is capable of application with both ISP email services and webmail services. There are differences between the implementation of the invention when considering the possible forms of mail transfer. Descriptions of both types of activity by the application are set out below.

Email users, using an ISP, will download the application onto their computer. The process of inserting an advert into an Email is controlled by communication between the application and a server, termed a mail server.

When the user sends or receives electronic communication the application detects the communication and identifies itself to the mail server and requests instructions. The server responds with instruction as described above. The application then transmits details to the server as instructed by the server. This may include mail headers, previously gathered contacts and the like. The mail server responds with branding instructions and content of the information to be inserted. The server may also instruct the application to collect details of new contacts (such as new email addresses). The application then modifies the transmission

in accordance with the instructions from the server and forwards the transmission on to its originally destination. This will usually be the ISP.

The system is slightly different for webmail users. In this case the application passes each web request and response to a local webmail registry to ascertain which requests or responses are webmail sends or receives.

An optimised look-up algorithm has been designed for the webmail registry to use that will allow non-webmail requests and responses to pass through the application almost instantaneously.

The webmail registry runs locally for optimal performance, however it is refreshed regularly from the mail server to allow webmail services to be added and modified centrally and updated transparently.

If the registry recognises a webmail request or response then it provides a processor module to the application for further processing of the request or response. The Processor module comprises facilities for converting the webmail request or response into a canonical message format, obtaining details of the specific capabilities of the webmail service to the mail server and converting a canonical message back into the relevant webmail request or response.

The canonical formatted document is passed to the mail server, which acts upon the message using the same rules for standard SMTP/POP mail.

For incoming webmail, once the processing decisions have been made, the server sends instructions and the information to be embedded to the application which allows the application to process the instructions accordingly.

The process for outgoing mail is dependent upon the capabilities of the webmail service.

After the general processing decisions have been made the information is then embedded into the webmail. If the webmail service offers sufficient capabilities to fulfil the processing requirements by altering the message body, then instructions and information to inserted into the message body are supplied to the application. The application responds to the instructions and alters the message body, before allowing the message to pass through the webmail service and on to its original destination. The individual webmail processor allows the request

to be modified in such a way that it fulfils the applications processing requirements without adversely affecting the operation of the webmail service.

However, if the webmail service does not have sufficient capabilities a different approach is required. In this scenario a docket id is generated. The docket id is created using a technique that makes it impossible for a third party to generate a fake docket id. The original recipients of the email and the subject of the email are stored in the storing database, along with a unique application id, using the docket id as a key. The application is then sent instructions to remove the existing subject matter and recipient addresses and to readdress the email to the mail server using the docket id as the mail subject. The application responds to the instructions and alters the message accordingly, before allowing the message to pass through the webmail service. The individual webmail processor allows the request to be modified in such a way that it fulfils the application processing requirements without affecting the operation of the webmail service.
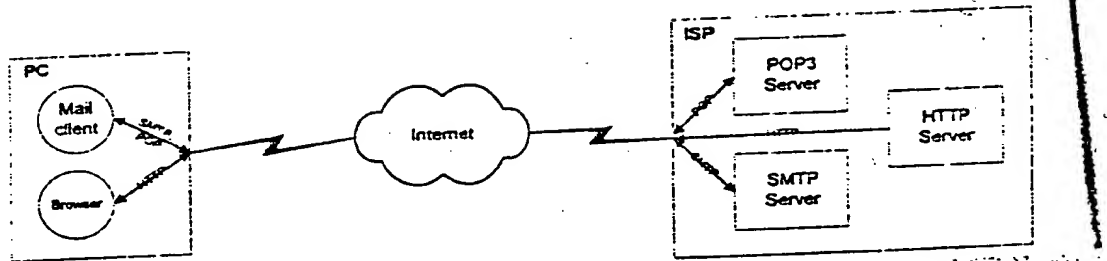
After the mail leaves the webmail servers it will arrive at the mail server that is running a server-side version of the application. The mail server extracts the docket id form the subject line and researches the original subject, recipients and the local application id from the database. The original mail headers are reinstated in the mail, which is then processed by the server-side application exactly as if it was running on the local computer. The email then continues on to its original address.

Fake docket ids are handled with in accordance with current business rules.

It is to be understood that the above described specific embodiments are described by way of an example only and that many modifications and variations are permitted within the scope of the invention.
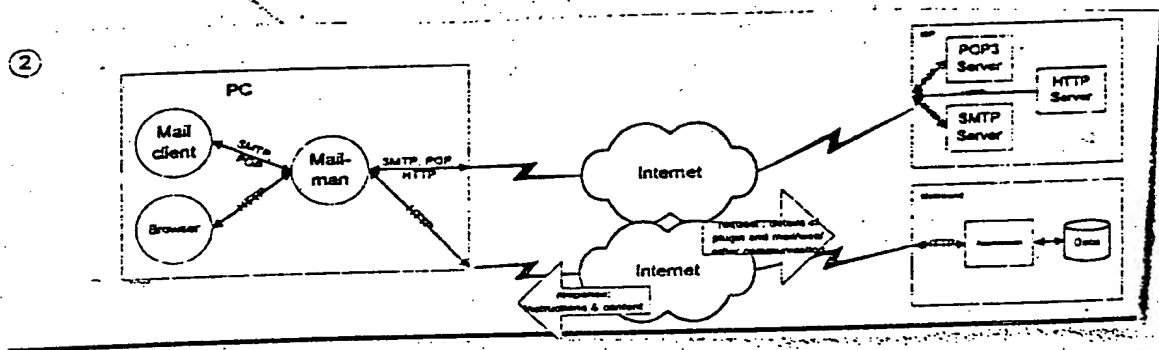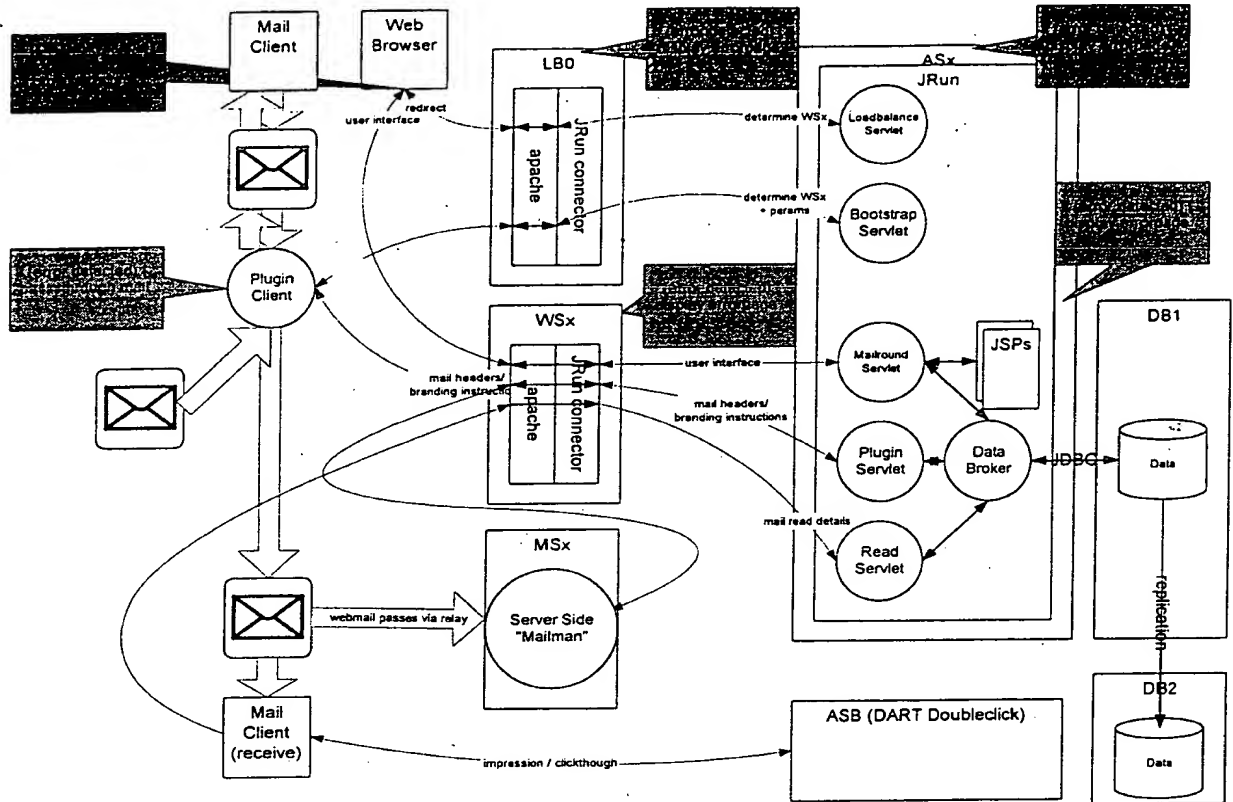
Fig 1

1/3

Fig 2

② PC

Mail
client

Browser

Mail-
man

SMTP, POP
HTTP

Internet

Internet

POP3
Server

SMTP
Server

HTTP
Server

Data

2/3

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Fig 3

Mail Client

Web Browser

LBO
JRun connector
apache

ASx
JRun

redirect
user interface

determine WSx
Loadbalance Servlet

determine WSx + params
Bootstrap Servlet

Plugin Client

WSx
JRun connector
apache

mail headers/ branding instructio

user interface
Mailround Servlet

JSPs

DB1
Data

mail headers/ branding instructions

Plugin Servlet

Data Broker

JDBC

mail read details

Read Servlet

MSx
Server Side "Mailman"

webmail passes via relay

replication

Mail Client (receive)

ASB (DART Doubleclick)

DB2
Data

impression / clickthough

3/3

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